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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/708,036	11/08/2000	Mark S. Wight	71493-885	8046
7380	7590	12/14/2004	EXAMINER	
SMART & BIGGAR/FETHERSTONHAUGH & CO. P.O. BOX 2999, STATION D 900-55 METCALFE STREET OTTAWA, ON K1P5Y6 CANADA			SCHEIBEL, ROBERT C	
			ART UNIT	PAPER NUMBER
			2666	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/708,036

Applicant(s)

WIGHT ET AL.

Examiner

Robert C. Scheibel

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--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-8,13-16 and 20 is/are rejected.
- 7) ☒ Claim(s) 3-5,9-12 and 17-19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see the amendment to the specification on page 2 and the related comments in the second paragraph of page 3, filed 7/16/2004, with respect to the objections to the specification have been fully considered and are persuasive. The objections to the specification have been withdrawn.

2. Applicant's arguments, see pages 3-4, filed 7/16/2004, with respect to the rejection of claims 1-2, 6-8, 13-16, and 20 under 35 U.S.C. 102(b) by U.S. Patent 5,537,394 to Abe et al have been fully considered but they are not persuasive.

Applicant summarizes the rejection in the fourth paragraph of page 3. In the next paragraph, the applicant argues that Abe does not disclose a host processor of the network and similarly does not disclose supplying queries from that host processor to the topology engine or receiving responses from the topology engine. Examiner respectfully disagrees with this argument based on the broad language of the claim. The switch controller is part of the network and performs processing to control the switch and is thus a host processor of the network. As stated in the office action, Abe does a host processor of the network as the combination of the switch controller and the switch of figure 4. Further, this host processor sends a query to the topology engine (the neural network) as described in lines 52-58 of column 12 (in response to a connection request from a user). Finally, the response to the query is disclosed in the path selecting section supplying the switch controller with the selected path as described in lines 19-30 of column 16. Examiner maintains the previous argument based on the broad claim language.

Regarding claim 7, applicant argues in the next paragraph that the comments of claim 1 regarding the host processor apply to claim 7 as well. As stated above, examiner maintains the previous rejection based on the claim language. In the following paragraph, applicant further argues that Abe does not disclose connections between the processing elements as stated in claim 7. Applicant argues that the link associative neurons are not connections. Examiner disagrees with this assertion based on the broadest reasonable interpretation of the claims. As stated in the previous office action, link associative neurons are the connections between the processing elements since they provide a path of connectivity between the node associative neurons (which are the processing elements.)

Applicant argues in the first full paragraph of page 4 that the assertion in the previous action that the status of the link associative neurons discloses the connection matrix appears not to be correct. However, applicant did not elaborate as to why this does not appear to be correct and the examiner maintains the previous position. In the same paragraph, applicant argues that the illustration of connections between neurons NR is not the same as the connection between the nodes in Figure 5. Examiner disagrees that this distinguishes the claimed invention from Abe. The neural network of figure 5 contains both node associative and link associative neurons (shown as circles). In contrast, the communications network uses the same circle symbol only for the nodes. Examiner asserts that this is the reason for the apparent discrepancy. See lines 29-48 of column 14 which describes the one-to-one relationship of the node associative neurons and link associative neurons to the nodes and links of the network, respectively.

In the second full paragraph of page 4, applicant argues that claim 15 is distinguished from Abe for similar reasons as those argued for claims 1 and 7. In particular, applicant

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emphasizes that Abe does not disclose the limitation of connections between the processing elements. Examiner maintains the position of the last office action (as explained above) due to the broad claim language. The link associative neurons connect the node associative neurons to one another and thus are connections.

In the next paragraph, applicant argues that Abe does not disclose the limitations of claims 2, 8, and 16 because Abe states that there is a one-to-one correspondence between the nodes and the node associative neurons. Examiner believes that this passage in Abe is not related to the subject matter of these claims. It is true that there is a one-to-one correspondence between the node associative neurons (processing elements) and the nodes of the actual network. However, as stated in the office action, the routing control section is shown as being implemented as an individual unit (one processor), but it has multiple instances of processing elements (the node associative neurons) running on it. Based on this, the examiner maintains the previous rejection.

3. Applicant's arguments, see pages 4-6, filed 7/16/2004, with respect to the rejection of claims 1, 3-7, 9-15, and 17-20 under 35 U.S.C. 102(b) by U.S. Patent 5,323,394 to Perlman have been fully considered and are persuasive. The rejection of claims 1, 3-7, 9-15, and 17-20 under 35 U.S.C. 102(b) by U.S. Patent 5,323,394 to Perlman has been withdrawn.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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2. Claims **1-2, 6-8, 13-16, and 20** are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,537,394 to Abe et al.

Regarding claim **1**, Abe discloses the step of representing a topology of the network by a plurality of processing elements in Figure 5. The “node associative neurons” described in lines 30-39 of column 14 are the processing elements. (Nodes in neural networks are commonly referred to as processing elements.) The connection matrix is represented by the status of “link associative neurons” V_{ij} described in 12-35 of column 15. While Abe does not specifically refer to these values as comprising a matrix, it is clear that link associative neuron i,j can be viewed as representative of element i,j of a matrix representing the connections in the switch in figure 4. The step of supplying queries representing physical problems of the network from a host processor to a topology engine is disclosed in the link or connection request from a user and the subsequent communication process information P transmitted to the routing control section described in lines 52-58 of column 12. The host processor is the combination of the switch and switch controller of figure 4 and the topology engine is the routing control section 70A of figure 4. The user request is transmitted from the switch to the routing control section via the signal processor and the processing information generating section; the selected path is transmitted back to the switch controller from the path selecting section. The step of processing the queries is disclosed in the path selection carried out by the path selecting section 72 of figure 4. The step of supplying responses to the queries from the topology engine to the host processor is disclosed by the path selecting section 72 supplying the switch controller with the selected path as described in lines 19-30 of column 16.

Regarding claim 7, the step of representing a topology of the network is anticipated by the routing control section 70A of figure 4 and the neural network of figure 5. As above, the processing elements are the “node associative neurons” and the connections between the processing elements are the “link associative neurons” described in lines 30-39 of column 14. The step of supplying a connection search request is disclosed by the connection request described in lines 50-62 of column 12. The step of communicating information between processing elements of the connection engine to determine a connection path between processing elements of the connection engine representing the start and end network devices is disclosed in lines 40-48 of column 14. This passage describes the propagation of the excitation input through the neural network to determine the path. The step of supplying information identifying the connection path from the connection engine to the host processor is disclosed by the path selecting section 72 supplying the switch controller with the selected path as described in lines 19-30 of column 16.

Regarding claim 15, the step of representing each network device by a processing element is disclosed in the “node associative neurons” of figure 5 described in lines 30-39 of column 14. The step of representing each connection between the network devices by a respective connection between the processing elements in the “link associative neurons” described in lines 30-39 of column 14. The step of supplying from the host processor to the connection engine information for maintaining a record of connections is disclosed by status information Q of figure 4. The step of supplying from the host processor to the connection engine a search request identifying start and end network devices for a connection is disclosed by the connection request described above and in lines 52-58 of column 12. This passage indicates

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examples of the information contained in this request (including the destination); this information also must inherently contain the start network device if it can be used to generate a useful communication path. The step of communicating information between processing elements via the connections between the processing elements and in dependence on the record of connections to determine a connection path is disclosed by lines 40-48 of column 14 as explained above. The step of supplying information identifying the connection path from the connection engine to the host processor is disclosed by the path selecting section 72 supplying the switch controller with the selected path as described in lines 19-30 of column 16.

Regarding claims **2, 8, and 16**, with the parent claims 1, 7, and 15 addressed above, figure 4 shows the routing control section implemented as an individual unit or processor. Thus the processing elements (node associative neurons) are different instances constituting respective ones of the processing elements and the number of processors is smaller than the number of network devices.

Regarding claim **13**, with the parent claim 7 addressed above, the step of supplying from the host processor to the connection engine information for maintaining a record of connections in the network is disclosed by status information Q of figure 4.

Regarding claims **6, 14, and 20**, with the parent claims 1, 7, and 15 addressed above, the connection engine is the routing control section 70A of Figure 4. As indicated above, the processing elements are the “node associative neurons” described in lines 30-39 of column 14. The connection matrix is represented by the status of “link associative neurons” V_{ij} described in 12-35 of column 15. While Abe does not specifically refer to these values as comprising a

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matrix, it is clear that link associative neuron i,j can be viewed as representative of element i,j of a matrix representing the connections in the switch in figure 4.

Allowable Subject Matter

3. Claims 3-5, 9-12, and 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,141,325 to Gerstel discloses a method of performing routing calculations using agents which is similar to the subject matter under the current broad claim language. U.S. Patent 5,398,012 to Derby et al discloses a method for distributed processing of route selection.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert C. Scheibel whose telephone number is 571-272-3169.

The examiner can normally be reached on Monday and Thursday from 6:30-5:00 Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RCS 12-13-04

Robert C. Scheibel
Examiner
Art Unit 2666

Seema S. Rao
SEEMA S. RAO *12/13/04*
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800